

MORE SOURCE, PLEASE

Between population growth, climate change and weather extremes such as drought and fire, source diversification is a crucial element of water security planning.

By Martin Kovacs

The role of source diversification in water security planning is an important focus for industry amid the increasingly pressing challenges brought about by

population growth and climate change. However, while there is broad recognition within the water sector that all options need to be on the table, building momentum for change is an ongoing and cumulative process.

In addition to technical and logistical considerations, transitioning to new water sources requires supply and demand forecasting, assessment of the practical and economic feasibility, and ongoing stakeholder and community engagement, undertaken in line with the regulatory requirements.

Locking in investment decisions involves alignment of a range of moving parts, with Hunter Water Acting Water Resilience Program Director, David Derkenne, noting that source diversification mitigates against risk by paving the way for varied and flexible planning. “Water resilience is not only about providing a robust system,” Derkenne comments. “It’s providing a system that is able to adapt to future changes, whether they be in technology, environmental conditions, or changes in community attitudes and perceptions.”

“Because planning for one particular future won’t necessarily meet the community’s needs if things turn out differently – just like we’ve seen with the impact COVID has had on the way we work.”

THE POSSIBILITY OF WATER RECYCLING

Water recycling for potable use remains a contentious issue, with the Water Services Association of Australia’s (WSAA) *All Options on the Table* report pointing to community acceptance as often



being the most challenging aspect of setting up a scheme.

Western Sydney University Senior Lecturer, Science, Dr Ian Wright, describes recycled water as a “low-hanging fruit” among source options, stressing the importance of informed dialogue. “It does require careful engineering, management and science, but it’s presented sort of like a shock,” he says. “The way we share it with people is as if it’s never been done before and it’s a huge risk.”

As the WSAA report notes, purified recycled water schemes span every continent, while Wright also notes that in areas across Australia, indirect reuse already occurs when treated sewage is discharged into feeder rivers.

Dr Meenakshi Arora, The University of Melbourne Associate Professor, Environmental Engineering, points to the power of direct experience in breaking down preconceptions, highlighting the role demonstration facilities can play in engendering community acceptance. “I think the community is at the point where they are quite keen to see things in operation,” Arora says. “The biggest way forward, to bring the community onboard, is going to be having enough political will to demonstrate systems at large scale.”

BACKED BY LEADERSHIP

The Australian Water Association’s submission to the Productivity Commission’s National Water Reform Inquiry highlights the risks of water reform benefits stagnating, magnified by extremes including drought, fire, flood and the COVID-19 pandemic. >

CASE STUDY HUNTER WATER

The NSW government’s Lower Hunter Water Security Plan is currently under review ahead of the expected release of a new plan this year, with Derkenne stating that source diversification is a key consideration in planning for a resilient water supply.

“One of the principles we took into the work was all options are on the table,” he says. “Having a merit-based discussion on all supply and demand options is a key part of ensuring we have a planning process that people can have confidence in.”

This has allowed Hunter Water to identify and progressively narrow down the different options at its disposal over the course of a distinctively staged planning process.

“The first stage was understanding community values about their water future, and the second stage was building our understanding of the supply and demand options we have available in the Lower Hunter,” Derkenne explains.

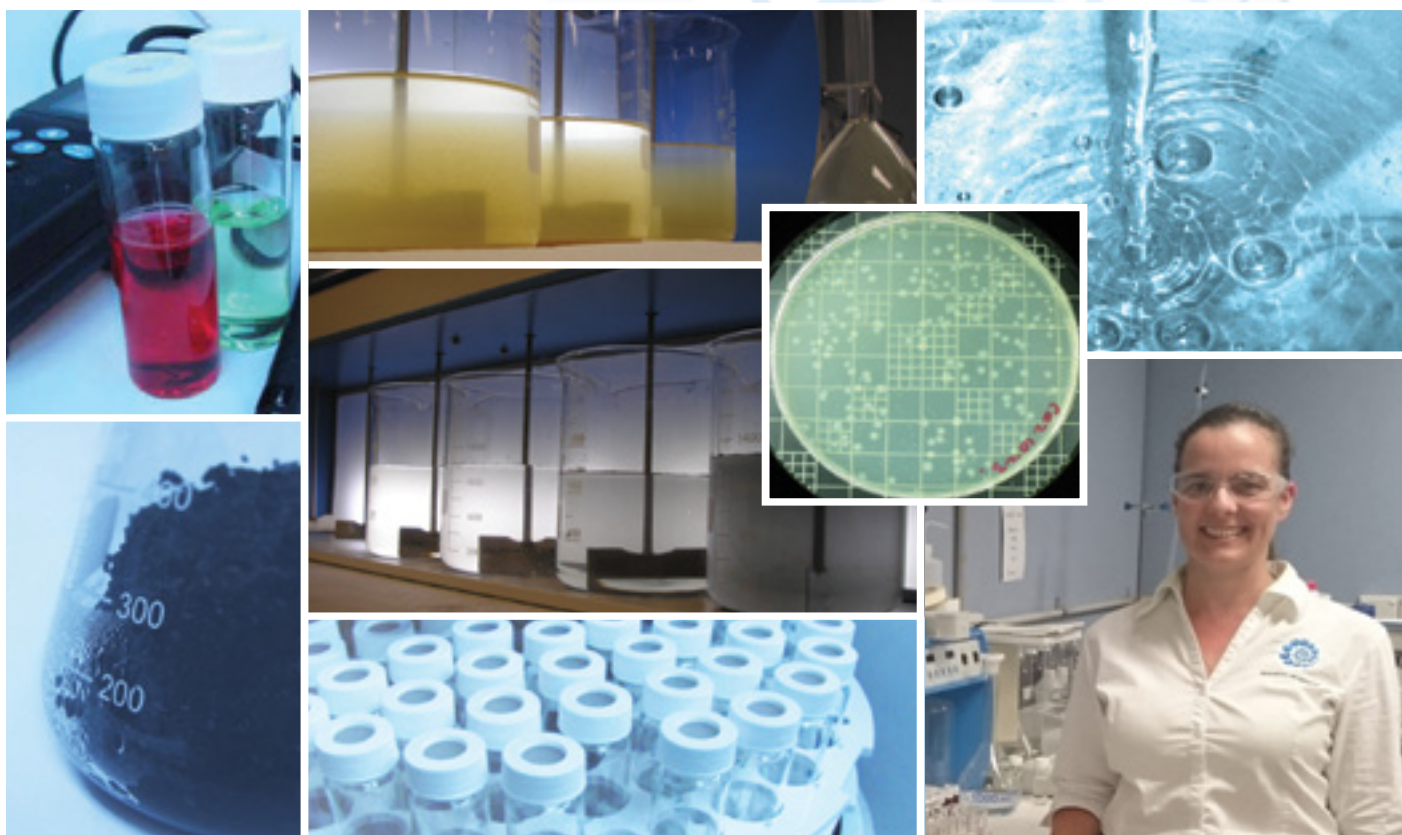
“We’re now at the stage of pulling those supply and demand options together into a number of portfolios designed to meet our water needs into the future.”

These portfolios comprise a range of demand-side and supply options, with Hunter Water undertaking modelling to assess how they perform against various social, economic and environmental criteria.

Beyond building an investment case for new supply sources, Derkenne emphasises the importance of integrating community input into security planning. “Strong engagement with the community and stakeholders is central to the planning process,” he stated. “The critical part has been engaging with our community, ensuring their views and values are incorporated.”

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The submission stresses the importance of national collaboration and calls on the federal government to take on “a renewed leadership role in water policy”, helping to set the agenda across the public and private sectors. Additionally, it details the scope for a national reform agency to provide leadership and direction to oversee a revised National Water Initiative, facilitate inter-jurisdictional collaboration and coordinate knowledge-sharing to overcome barriers to reform.

As reform becomes increasingly urgent, Arora points to the issue of a short-term political memory regarding water security issues, noting this “generally leads to a panic stage, which means less sustainable, more expensive solutions put in place”.

Wright describes a cycle variously alternating between panic and business as usual, using the example of Sydney dam levels reaching near capacity following the recent >



Inside the Bundamba Advanced Water Treatment Plant.



“
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Dr Meenakshi Arora,
The University of Melbourne

CASE STUDY SEQWATER

Bulk water supply authority Seqwater’s updated water security program is due for release next year, with Wayne Middleton, Manager, Water Security Direction, highlighting the evolving nature of supply and demand forecasting.

“Providing water security is underpinned by an assessment of demand into the future, and then considering unexpected circumstances and other uncertainties,” Middleton says. “Our system will require augmentation around 2041. The work we’re doing now will likely see that brought forward because of increasing demands and climate change.”

This encompasses a strategic assessment in line with the Queensland government’s business case development

framework. Middleton explains that Seqwater is both assessing needs and examining a range of interrelated factors influencing the feasibility of potential supply initiatives.

Among different source options, Middleton points to Seqwater’s Western Corridor Recycled Water Scheme and purified recycled water’s strong potential as populations grow and wastewater volume increases, and emphasises the importance of Seqwater’s community initiatives. “We have been doing a lot of educating and garnering support for recycled water as a viable water supply option,” he comments. “It’s a high-potential initiative in terms of the next water supply – it’s definitely not off the table.”

shortages, and believes it will be a term of parliament before it becomes an issue again”.

“We need bipartisanship to sort this out, because we’re heading for many perfect storms, particularly for inland communities that don’t have an option of desalination,” he comments. “I think we need a different narrative. It should be above politics, it needs leadership, and I think it needs to be federal, state and local.”

WATER SOURCE OPTIONS



SURFACE WATER

SOURCED FROM ABOVE-GROUND WATER BODIES, SUCH AS RIVERS AND LAKES.



GROUNDWATER

EXTRACTED FROM UNDERGROUND AQUIFERS.



DAMS

STRUCTURES BUILT TO CATCH AND STORE WATER.



DESALINATION

THE PROCESSING OF SEAWATER INTO DRINKING WATER.



STORMWATER HARVESTING

FOR POTABLE AND NON-POTABLE USE.



PURIFIED RECYCLED WATER

PRODUCED FROM TREATED WASTEWATER.



The Gibson Island Recycled Water Treatment Plant

CASE STUDY ORANGE CITY COUNCIL

Orange City Council’s Blackmans Swamp Creek and Ploughmans Creek stormwater-to-potable schemes form a critical component of its water supply strategy and have bolstered its resilience to drought.

The council had initially set about exploring diversification feasibility against the backdrop of the Millennium Drought, with Wayne Beatty, Water and Sewer Manager (Strategic), noting that a community in the grip of drought was more than receptive to the initiative.

“It set us up really well for this current drought that we’ve just been through,” Beatty says. “Without the works that we did in the Millennium Drought we’d have struggled big time in this drought just finished. But, in saying that, there’s still a body of work to be done in the planning aspects.”

The Blackmans Swamp Creek Stormwater Harvesting Scheme Stage 2 has been proposed to further augment supply, with Beatty stating that all options need to be considered as part of the ongoing process of getting the supply balance right.

Among other source diversification options, Beatty pointed, in particular, to the potential for the integration of recycled water, which he said the council is currently looking into.

“We all know you can recycle it for drinking, and you can recycle it to use for irrigation – you can do all of these things technically, but the biggest battle is winning over the community, engaging with the community and getting acceptance,” he explains.

“Now we think we’re half the way there with our stormwater harvesting, given the community’s taken that onboard.”